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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/521,280	03/07/2000	Stephan Voges	EFIM0252	9230

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EXAMINER

KISS, ERIC B

ART UNIT PAPER NUMBER

2122

DATE MAILED: 04/02/2004

20

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/521,280

Applicant(s)

VOGES ET AL.

Examiner

Eric B. Kiss

Art Unit

2122

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,5,55 and 56 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5,55 and 56 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 8, 2004, has been entered. Claims 1, 5, 55, and 56 are pending.

Drawings

2. The drawings were received on January 12, 2004. These drawings are acceptable.

Response to Amendment

3. Applicant's amendment to the specification appropriately addresses the objection to the specification based on lack of clarity. Accordingly, this objection is withdrawn in view of Applicant's amendment.

Response to Arguments

4. Applicant's arguments filed January 8, 2004, have been fully considered but they are not persuasive.

In response to Applicant's arguments, the recitation "using a single executable program" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Claim Rejections - 35 USC § 102

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 1 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,600,579 to Steinmetz, Jr.

As per claim 1, *Steinmetz, Jr.* discloses partitioning functionality of a test bench (hardware design verification system) between a simulation engine (simulator means) and one or more scripted routines, wherein each scripted routing implements a corresponding function

(scripting means; see column 3, lines 3-19 and Fig. 1); instantiating one or more interpreters in the simulation engine, wherein each interpreter is associated with a corresponding scripted routine and may interact with the simulation engine independently of any other interpreter (see column 8, line 13 through column 9, line 22); causing the simulation engine to pass control to the corresponding interpreter upon encountering one of the functions (see, for example, column 22, lines 47-60; and column 12, lines 8-53); and causing the corresponding interpreter to return control to the simulation engine upon encountering a task that is performed by the simulation engine (see, for example, column 11, line 52 through column 12, line 4; and column 20, lines 28-40).

As per claim 5, *Steinmetz, Jr.* further discloses synchronizing the simulation and interpreter using a semaphore (acknowledgement command word; see column 23, lines 30-39).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 55 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,600,579 to Steinmetz, Jr. in view of Paul R. McJones and Garret F. Swart,

"Evolving the UNIX System Interface to Support Multithreaded Programs," December 1989, Proceedings of the 1989 USENIX Winter Conference, pp 393-404 (hereinafter [McJS89]).

As per claim 55, *Steinmetz, Jr.* discloses partitioning functionality of a test bench (hardware design verification system) between a simulation engine (simulator means) and one or more scripted routines, wherein each scripted routine implements a corresponding function (scripting means; see column 3, lines 3-19 and Fig. 1); instantiating one or more interpreters in the simulation engine, wherein each interpreter is associated with a corresponding scripted routine and may interact with the simulation engine independently of any other interpreter (see column 8, line 13 through column 9, line 22); causing the simulation engine to pass control to the corresponding interpreter upon encountering one of the functions (see, for example, column 22, lines 47-60; and column 12, lines 8-53); and causing the corresponding interpreter to return control to the simulation engine upon encountering a task that is performed by the simulation engine (see, for example, column 11, line 52 through column 12, line 4; and column 20, lines 28-40).

Steinmetz, Jr. fails to expressly disclose using multiple threads to partition the functionality of the test bench. However, the use and benefits of threads and multithread processing are notoriously old and well known in the computer art. [McJS89] is cited as discussing just one example of such use and a sample of the resulting benefits of multithreading. [McJS89] teaches, "Allowing multiple threads to execute within the same address space makes it easier to write programs that deal with related asynchronous activities and that execute faster on shared-memory multiprocessors" (see the first sentence of the Abstract). Therefore, it would

have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of *Steinmetz, Jr.* to include the use of multiple threads in partitioning the functionality of the test bench. One would be motivated to do so to gain the advantages of ease of implementing asynchronous activities and faster execution.

As per claim 56, *Steinmetz, Jr.* further discloses synchronizing the simulation and interpreter using a semaphore (acknowledgement command word; see column 23, lines 30-39). Therefore, for reasons stated above, such a claim also would have been obvious.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Eric B. Kiss whose telephone number is (703) 305-7737. The Examiner can normally be reached on Tue. - Fri., 7:30 am - 5:00 pm. The Examiner can also be reached on alternate Mondays.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Tuan Dam, can be reached on (703) 305-4552. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Art Unit: 2122

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EBK /Egk
March 26, 2004


WEI Y. ZHEN
PRIMARY PATENT EXAMINER